REFLEXIONS

Concerning the

VIRTUES

OF

TAR WATER.

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WHEREIN

Is proved by EXPERIENCE, that its preſent PREPARATION is not founded upon PHILOSOPHICAL PRINCIPLES; and that, as now Prepared, it may probably occaſion more DISEASES than it can poſſibly cure.

WITH

HINTS for its IMPROVEMENT, ſo as to make it a moſt efficacious and pleaſant Medicine.

By *H. JACKSON*, Chemiſt.

Homines ad Deos nulla Re propius accedunt, quam Salutem Hominibus dando. TULL.

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REFLEXIONS

Concerning the

VIRTUES

TAR WATER, &c.

MVSEVM
BRITAN
NICVM

TAR WATER, as it is lately ordered by the Bishop of Cloyne, being at present almost as universal in its Use as it is proved to be in its Properties, by this learned Author; I hope it will not be thought presumptuous in me to undertake to prove why, and in what Manner, it may be improv'd in its excellent Qualifications, by a particular Management in its Preparation, since nothing but the general Good of Mankind is hereby aimed at. And tho' the learned

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TARWATER, as it is lately ordered by the Biſhop of *Cloyne*, being at preſent almoſt as univerſal in its Uſe as it is proved to be in its Properties, by this learned Author; I hope it will not be thought preſumptuous in me to undertake to prove why, and in what Manner, it may be improv'd in its excellent Qualifications, by a particular Management in its Preparation, ſince nothing but the general Good of Mankind is hereby aimed at. And tho' the

learned Bishop has given Directions to prepare it in a very simple Manner, probably with the Intention that it might be equally serviceable to the Poor and Rich, yet I think few Reasons can be assign'd, why the Rich may not be supplied with a more neat and certainly a more efficacious Remedy; especially, since the Price, even then, will not much exceed the present Rate, as I shall endeavour to prove.

Norway Tar, as it is now imported, is unquestionably the best for this most noble Medicine, as being endowed with the most fragrant and subtile Parts, beyond other Tars, which is evident by its Smell, and by its Taste, as being least acrimonious; and it has been proved by several ingenious Chemists, that it partakes least of that heating sulphurous Property, which abounds in all these Balsams, either more or less.

Common Tar, or Tar from hot Climates, is not so well saturated with this fine volatile aromatic Flavour. This, perhaps, in some Measure, may be owing to the Influence of the Sun, which exhales all the finest Parts, except those that are closely connected, and suppress'd by the viscid Juices of the Trees; whereas in colder Regions, the Pores of the Trees are more close

close and compact, and by that means these subtile Parts are more detain'd and lock'd up in their proper Cells, from whence proceeds the finer Flavour. But notwithstanding this, the best *Norway* Tar, as it is now imported, is so loaded with heterogeneous Matter, such as Sticks, Straws, Flies, Sand, and various other Bodies which cannot be defined, and which cannot subside in the Barrel, by Reason of its Consistence or Thickness, (it being design'd more for the Use of Ships than Medicine) that a Method ought to be considered which Way to refine it, like other natural Balsams, without damaging its natural Properties. This none but the chemic Art can well effect, so that it is needless to deliver the Process, since none but Chemists can perform it with Success; and that they can do at a trifling Expence. By this Method it is so contriv'd, that the pungent Taste of the Water is greatly lessen'd, and it is not so apt to regurgitate upon weak Stomachs; which frequently happens to the fair Sex, and renders them incapable of retaining it, for whose particular Maladies it is peculiarly excellent, as is unquestionably prov'd by the Author of *Virtus*, Sect. 5. and

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The next Thing I ſhall take notice of is the Water. Our Author has not expreſly informed us what Sort to make uſe of; ſo that we might uſe any Sort indifferently, was it not that our own Reaſon is ſufficient to convince us what Sort to prefer; but leſt the injudicious Part of Mankind may not comprehend what is meant, I ſhall endeavour to prove what Water ought to be preferred in compounding this moſt valuable Medicine.

Our Author tells us in Sect. 110 of his *Siris*, that *Tar Water* ought to be taken for ſome conſiderable Time in chronic Caſes, ſuch as the Gravel, Gout, Scurvy, &c. And that he has known very great Advantages procured thereby, which did not begin to appear till it had been taken two or three Months; which Circumſtance in all Alteratives ought to be, but ſeldom is, regarded: now, as ſuch a long Time muſt be allowed to compleat the Cure of a chronic Diſtemper, it follows, that a large Quantity of Water muſt be drank during this Time, perhaps the Quantity of twenty or thirty Gallons, or it may be three Times as much, before it be entirely forborn. But admit, that in painful Diſtempers, as the Gout and Rheumatiſm, it ſhou'd only procure Eaſe, during the taking it, and a Relapſe ſhou'd enſue upon omitting

omitting it, as it may justly be suspected sometimes to fall short of a perfect Cure in the Gout or Scurvy; then it naturally follows, that a Patient wou'd continue taking it, perhaps for Years, or, so long as he perceived any good Effect by its Use. Now as there is thus sometimes a Necessity for drinking so great a Quantity of Water, it may justly be disputed whether the Cure might not be of worse Consequence to the Patient than the Disease; I mean, by employing an improper Water in making the Medicine: For most Waters are widely different in their Properties, according to the various Sources from whence they arise; as for Instance, Well-Waters chiefly are impregnated with mineral or metalline Particles, and River-Waters, which I suppose are chiefly used in *London* for this Medicine, abound with divers heterogeneous Particles, according to the various Soils they glide upon; and there is no Water at all so pure, but is loaded either more or less, with something foreign to itself: If any one disputes the Truth of this, let him but inspect the Inside of one of the Lady's Tea-kettles, and that will certainly convince him, or look into one of the leaden Pipes which conveys this Water for Kitchen Use, even if it has been laid but for three Months, and he will find the Inside

ſide lined with a ſtony Concrete: Then, without any cavilling or entering into any abſtruſe Mathematical Demonſtration in this Point, I ſhall leave every one to judge what muſt be the Conſequence of drinking ſo much of this crude Water, which muſt be done in the common Method of making *Tar Water*.

But that I may not be thought ſingular in my Opinion, I ſhall juſt beg leave to ſubjoin ſome Quotations from Authors of eſtabliſhed Reputation for Learning and Genius, to confirm what I have already advanced, and then propoſe a Method how to avoid this Evil at a ſmall Expence.

Moſt Naturaliſts tell us of ſurprizing Inſtances of ſome Waters, which are of ſuch a petrifying Nature, that in Rivulets wherein Water-mills have been fixed, the Periphery which catches the Water in ſmall Boxes has been petrified to ſuch a Degree, that the Owners have been obliged to clear it frequently with proper Inſtruments, in order to facilitate the Motion of the Wheel: ſuch an Inſtance as this I have ſeen, and whoever inſpects the Water-works of *London* Bridge, will find ſomething to the ſame Purpoſe.

Dr. *Mead* has furniſhed us with ſome Hints of this Kind, in his laſt Eſſay on Poiſons. At *Paris*, it has been remarked, that the River *Seine* is ſo full of ſtony Corpuſcles, that the Inhabitants there are more ſubject to the Stone and Gravel, than at other Places.

Now let us ſuppoſe, what is very poſſible, that Waters may be impregnated with Metallic Particles of ſome Ore or other; then theſe, according to their various Gravitations, the Capacities of the Canals or Veſſels, and ſuch like Circumſtances, (when they come to circulate in the human Body) muſt attract and be attracted by other Particles, which are already depoſited either in the Kidneys, Bladder, or other ſecretory Paſſages, and cannot but form, and, as it were, cement a ſtony Subſtance, which, 'tis greatly to be feared, will defeat all the Efforts and ſovereign diſſolving Properties of *Tar Water* itſelf; nay, much ſtronger Medicines; of which the once famed Mrs. *Stephens*'s are an Inſtance.

The Conſideration of what has been ſaid, and the Idea, which may be conceived of the infinite Number of ſmall Ducts or ſecretory Veſſels, through which this Liquor muſt be ſtrained, ought to

give us convincing Demonstrations, why it is as likely to procure Obstructions, as to remove them, and, consequently, lay the very Foundation for all Chronic Diseases; which, in my Opinion, must and do proceed from one and the same Cause.

Dr. *Lister* observes, that Waters which pass through a clayish Bottom, must partake of metallic Particles, because Clay is a mineral Glebe, and that these Particles are not to be master'd, that is, they cannot be digested in the human Body; and therefore, he concludes, they cannot but cause calculous Concretions in the Kidneys, Bladder, and Joints. If this be the Case, we need not wonder why insensible Perspiration is obstructed by them; and thus says the great *Sanctorius* in *Sect.* 2. *Aphor.* 2. that heavy Water converts the Matter of Transpiration into an Ichor, which being retain'd, induces a Cachexy, which the learn'd Author of *Tar Water* says, (*Sect.* 99.) is of the same Kind with the Scurvy, proceeds from the same Causes, and is attended with like Symptoms; which are so manifold and various, that the Scurvy may be looked on as a general Cachexy infecting the whole Habit, and vitiating all the Digestions.

From hence proceed Pains in the Limbs, livid Puſtules and Ulcers in the Body, with great Inflammation from the Acrimony of the obſtructed Ichor, or perſpirable Matter. Hyſterical Maladies are occaſioned by the ſame Means, for the laſt *Sanctorius* obſerves, in *Sect.* 3. *Aphor.* 13. that the Wind, ſo inſeparable from thoſe Caſes, is nothing elſe than the Fluid of Perſpiration crude and unfiniſhed: And a late very learned Author gives us the Hiſtory of a Lady, his Relation, who was very much afflicted with frequent Returns of violent Cholic Pains, till ſhe was adviſ'd by the noble *Van Helmont*, not to drink, as ſhe then did, Beer brew'd with Well-water, and ſoon after her Health was ſo far owing to that Management, that an Error in it, was unavoidably followed with the uſual Complaint.

It may be objected, that all Perſons are not alike ſubject to the Stone and Gravel, and that when Water is mix'd with the oily and acid Particles of the Balſam, it may, in ſome meaſure, relax the Veſſels, and by that means give Liberty to the obſtructed Matter to recover its Circulation or Secretion; but it muſt be conſidered, that moſt Conſtitutions are more or leſs ſubject to Gravel, as appears upon Diſ-

ſections, and by a ſandy Sediment depoſited in the Urine at various Times; it muſt be conſider'd too, whether the attractive Force of theſe ſtony Particles, or the relaxing or attenuating Properties of *Tar Water* predominate; which I ſhould imagine (conſidering the Narrowneſs of the Veſſels or Ducts, *&c.* thro' which it muſt paſs, whereby conſequently the Particles are brought more within the Sphere of one anothers Attraction) muſt be yielded to the former; eſpecially ſince it is a known Law in Mechanics, that in all Bodies or Particles of Matter, the attractive Force is as their Solidities, and Points in Contact, and that the attractive Force is infinitely greater at the Point of Contact, or extremely near it, than at any determined Diſtance. Beſides, it is allowed that this Balſam contains an Acid, which incorporates with Water; and there muſt be a Sulphur becauſe there is an Acid, for *Homberg* ſays, the Acid is always join'd to Sulphur, *Vide Siris*, Sect. 129, and Sir *Iſaac Newton* ſays, that whatever attracts and is attracted ſtrongly, is an Acid, *ib.* Sect. 130. The laſt Author has alſo proved, that Acids which lay ſuppreſs'd in ſulphureous Bodies, attract earthy ones more ſtrongly than their own, from whence

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he accounts for Fermentation, &c. which may be seen fully explain'd, as it is printed in the second Volume of Dr. *Harris's Lexicon Technicum*. From hence it follows, that when these acid Particles meet with earthy ones, which abound in Waters, they cannot but attract them; and when these Particles so attracted, do, by any Motion or Impulse meet with other Particles of a homogeneal Nature with themselves, which they cannot fail to do, either in the Bladder, Kidneys, or other Vessels in the Body, then it is that they attract each other most strongly, and so form Obstructions in this or that Vessel or Duct, which makes least Resistance, in spite of all the Intermediation of the Oil in *Tar-Water*, which bears but a small Proportion to the acid or attractive Force.

But to return to our Subject, Water is of so constant a Service in preparing our Diet as well as Medicines, that it may be justly said to be the Vehicle of all our Nourishment, so that we cannot be too inquisitive into its Nature and Difference, nor too nice in our Choice of it; and as it is the only Menstruum of so noble a Medicine as *Tar-Water*, it cannot be amiss to try and prove, if by our Art we can divest

diveſt it of all its noxious Qualities, ſince we can find none without, and by that Means make it approach nearer to a Principle; when it will be fitteſt to join and cohere with the moſt ſubtile Parts of that excellent Balſam called *Tar*.

This muſt be reſolved into the noble Art of Chemiſtry, the experimental Part of which can only convince us, that Waters may be purified ſo as to partake little, or, perhaps, nothing, of that noxious Quality ſo obvious in them; and I have been convinced of this, by frequent Repetitions of various Proceſſes perform'd with various Glaſſes within theſe two Months paſt, which would take up too much Room to inſert in this Place. What is here ſaid may occaſion various Objections, eſpecially from thoſe at preſent concerned in the common Preparation of *Tar Water*; but I dare venture to affirm, if the Queſtion was put to any Chemiſt, nay to thoſe who have only acquired a ſuperficial Knowledge in Phyſick, it would not be diſputed, but Waters may be purified by various Means to a great Degree, though they might ſtill fall ſhort of that Perfection, which cannot be perform'd effectually, without the Addition of a ſecond Principle,

ple, which has been successfully discover'd after a tedious Course of Experiments. For Distillation of Water alone, will not answer the Purpose; since after it has been distilled two or three Times, it will still continue to form a stony Concrete in the Inside of any Vessel it is boiled of even simmered in; and it is very easy to imagine what Consequences a continued Quantity may produce, when strained through the fine capillary Vessels in a human Body; which, as our great Author observes in Sect. 54, of his *Siris*, are said to be so small, that one Grain of Sand would cover the Mouths of more than a hundred Thousand.

It was observed before, and it may be justly repeated, that none but a Chemist can so dexterously prepare this Water, so as to free it from what is foreign to itself, consequently no Person can better prognosticate what Effects may proceed from its Use; for as our learned Bishop observes from *Socrates*, Sect. 253. You and the Cook may judge of a Dish on the Table equally well; but while the Dish is making, the Cook can better foretel what will ensue from this or that Manner of compoſing it; conse-

quently

rently the Chemiſt can judge beſt what will enſue from this or that manner of making a Medicine. People addicted to cenſure, may give out that ſelf Intereſt is the only Motive that has induced me to publiſh this Pamphlet, becauſe the Method of refining the two Principles is not recited; to which I anſwer, that the Chemic Province is too much invaded already by Empirics and Impoſtors, and thoſe who are diſſatisfied in this Point, are left to their own Option, either to continue drinking common *Tar Water*, or elſe apply to a Chemiſt for the other, ſince it is, at the ſame Time with this Book, publiſhed, where the genuine may be had at an eaſy Expence.

And though the Preference of this Medicine may be imagined from the Reaſons already given, yet I am far from diſparaging, or aſſuming the leaſt Merit due to our original and illuſtrious Author the Biſhop of *Cloyne*; his excellent Treatiſe certainly deſerves the greateſt Applauſe and Homage from every Rank, and from Perſons of Genius; and it would be folly in me to think him in the leaſt ignorant, either of the theoretical or experimental Part of Chemiſtry; what he has done may be more

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plauſibly accounted for, from the Satisfaction he enjoyed in diſcovering a Medicine ſo univerſal, and eaſy in its Purchaſe to Rich and Poor; yet no Reaſons can be aſſigned why we may not exerciſe our Faculties in meliorating that Medicine, and prove it more univerſal both by Reaſon and practical Experience.

I ſhall now conclude with making ſome Remarks upon the Manner of preparing this moſt noble Medicine, which when rightly managed, will juſtly deſerve all the Encomiums conferred upon it. Its preſent Preparation is the moſt improper that can be, which, in ſome meaſure, the Biſhop himſelf has proved by his own Philoſophy, in ſeveral Parts of his Treatiſe; for by his ordering it to be ſtirred with a Ladle, or flat Stick, one may ſuſpect that he and moſt others hitherto have prepared it in an open Veſſel, which muſt be inconſiſtent with all manner of Philoſophy. He lays great ſtreſs upon its Volatility, its ſubtile Oil or Acid, and its oily volatile vegetable Salt, which he ſays are the very Flower of its ſpecific Qualities; this makes it appear more ſtrange, that a Medicine endowed with ſuch fine volatile Parts, ſhould be made in an open Veſſel, unleſs

no intended to evaporate, or rob it of this Volatility. For he has taught us, in *Sect.* 46. that all the finest and purest Parts of any Body very easily ascend first: Where then must all these fine volatile, oily, and subtle acid Parts, as he calls them, go to, in a Vessel uncovered? It ought to be our chiefest Care to preserve them. What is the Worth of the once greatly fancied Spirits of Scurvigrass, after they have stood forty eight Hours in an open Vessel? *Sal Armoniac* and Salts of Tartar, perhaps, have less Volatility, than either *Tar* or *Water*, when single, yet upon the least mixing them one with the other, there immediately arises a Volatility, which affects the Nose so strongly, as not to be endured. But tho this will greatly admit of a Comparison, yet it does not exactly solve the present Problem. For, Tar being impregnated with such subtile Parts, which are suppressed from flying off by Reason of the Viscidity of its component Parts, yet when it comes to be divided, and, as it were, fluxed with such a Fluid as Water, then all its volatile Parts are disengaged, and set loose from their Imprisonment, and cannot fail to escape according to their different Degrees of Purity; especially if the Water be refined, for it is then rendred much fitter for Infusion,

because

becauſe its Parts, which before were groſs and heavy, being now made ſmall, and, as it were, volatile, it is fitted to inſinuate itſelf into the moſt remote Abſceſſes, and there adjoin itſelf to the moſt ſubtile parts of the Subject, which before were ſo cloſely ſhut up in theſe narrow Cells, as to debar the Entrance of more crude aqueous Particles. Much in the Manner as Spirits of Wine will diſſolve a reſinous Subſtance ſooner than Water; for the ſpirituous Particles being more ſubtile and exceedingly ſmaller than thoſe of Water, they can more readily enter into the Interſtices of the Reſin, and eaſily diſjoin its Parts, which are too cloſely united for the groſs Corpuſcles of Water to enter.

Hence it is manifeſt, that purified Water is not only incomparably better adapted to enter into the Stage of Circulation in human Bodies, but likewiſe more appropriated to extract a Tincture from Vegetables or their Balſams, which is the ſole Aim of our preſent Buſineſs.

FINIS.